Method and apparatus for power control in wireless networks

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Transmission power of a wireless terminal for transmitting a signal representing information of a particular information class to a base station capable of receiving signals for a plurality of information classes is determined based on a probability measure indicating received signal outage durations that would likely occur over a time interval. Moreover, the transmission power is determined to achieve probable signal outage durations according to the measure that are tolerable for the particular information class to be transmitted. The probability measure is further based on an enhanced characterization of a variation and mean of the detected signal interference magnitude over a time interval. Respective differences in the tolerable signal outage intervals for different information classes, such as voice, audio or video or data, and the corresponding enhanced interference characterization enable transmission of signals representing the information classes at desirably respective low power levels while still providing an acceptable quality of service relative to conventional power control techniques. Such low transmission powers tend to contribute less interference to the communication system and enable greater communication capacity.